ABSTRACT

A method that initiates several time synchronization passes between clock slave components and a clock master component in a wireless telecommunications system is provided. For every pass, each clock slave component generates and transmits a first timing cell to the clock master. The first timing cell contains a transmission time based on the clock slave component's clock. Upon receipt of the first timing cell, the clock master generates and transmits to the clock slave component a second timing cell containing the time the clock master received the first timing cell and the time the master transmitted the second timing cell. Upon receipt of the second timing cell, the clock slave component will obtain its reception time and calculate a transmission delay based on the reception time and the timing information contained in the timing cells. Each clock slave component utilizes a filtering function to drop information from a synchronization pass that may have undesirable data due to processing and other delays. The filtering function will also restart the synchronization process whenever a calculated transmission delay is smaller than the best delay. This allows the process to accurately hone in on the proper delay experienced between each clock slave component and the clock master. After timing information from a predetermined number of time synchronization passes has been obtained, each clock slave component uses an average transmission delay to synchronize its time to the clock master time.